

NASA Briefs

New device paves way for all-electric aircraft of future

Engineers at NASA's Dryden Flight Research Center have completed tests on a device that paves the way for developing future all-electric airplanes that could be safer and more fuel efficient than today's aircraft. The device, the Electro-Hydrostatic Actuator, eliminates or minimizes airborne dependence on pneumatic, hydraulic and mechanical systems. Its use reduces complexity and improves reliability, and could lead to fuel savings, a reduction in ground equipment, and a reduction in the vulnerability of military aircraft in combat situations—eliminating hydraulic lines in the fuselage and wing box. Taking its signals from the aircraft's flight-control computers, the device uses its electronics to "fool" aircraft computers into thinking a standard actuator is on board.

Global land rainfall increases this century

Global land precipitation has increased during the 20th Century, especially at the mid and high latitudes, according to a paper published in the November 1997 issue of the Journal of Climate, written by Drs. Inez Fung, Anthony Del Genio, and Aiguo Dai. The report is based on a recalibrated compilation and analysis of data from 1900-1988 and confirms previous speculation that land precipitation is increasing. The new research shows a global land trend of a 2.4 millimeters per decade increase in annual precipitation amounts. Multiplied by almost nine decades, this means that there is about 22 mm more rain falling now each year than there was at the turn of the century—rainfall as a global mean has risen by slightly more than two percent.

NASA, GSA cooperate on computer buys

NASA and the General Services Administration have agreed to work together to procure desktop computing and networking services in a way that should save taxpayers millions of dollars in the coming years. NASA Administrator Daniel Goldin and GSA Administrator Dave Barram announced the formation of the partnership after extensive discussions and working group sessions within the agencies. Under the terms of the partnership, the agencies will work closely together to implement GSA's Seat Management Program and NASA's Outsourcing Desktop Initiative.

Tailless fighter shows greater agility than conventional jets

The NASA/Boeing X-36 Tailless Fighter Agility Research Aircraft successfully completed its flight research program—demonstrating the feasibility of future tailless fighters achieving agility levels superior to today's best military fighter aircraft.

The project goals are to develop and demonstrate enhanced technologies to improve the maneuverability and survivability of future fighter aircraft. "All of our project goals were met or exceeded," said Mark Sumich, X-36 project manager at NASA's Ames Research Center, Moffett Field, Calif.

During the final flight phase, the

X-36 project team examined the aircraft's agility at low speed/high angles of attack and at high speed/low angles of attack. "We also achieved the final flight's goal to expand the X-36's speed envelope up to 206 knots (234 miles per hour)," Sumich said. "The aircraft's stability and handling qualities were excellent at both ends of the speed envelope."

Thirty-one flights were made during the flight research program at NASA's Dryden Flight Research Center. The first flight occurred on May 17. The final flight, which closed out the third phase of the program, took place on Nov. 12

and lasted 34 minutes. The X-36 flew a total of 15 hours and 38 minutes and used four different versions of flight control software. The aircraft reached an altitude of 20,200 feet and a maximum angle of attack of 40 degrees.

The 28-percent-scale X-36, built by the Boeing Phantom Works in St. Louis, is designed to fly without the traditional tail surfaces common on most aircraft. The X-36 is 18 feet long with a 10 foot wingspan; three feet high; and weighs 1,270 pounds. The aircraft is powered by a Williams Research F112 turbofan engine that provides 700 pounds of thrust. The aircraft is remotely con-

trolled by a pilot in a ground station cockpit, complete with a head-up display. The pilot-in-the-loop approach eliminates the need for expensive and complex autonomous flight control systems.

"We now have a proven research aircraft that can be used for future tests. As people become aware of the aircraft's capabilities, interest is increasing in using it for future flight tests," said Gary Jennings, X-36 program manager for Boeing Phantom Works.

With the flight test program completed, the X-36 will be placed in flyable storage condition in a hangar at Dryden.



Photo courtesy Halliburton

CHENEY VISITS—Former U.S. Secretary of Defense Dick Cheney visited JSC recently to meet with JSC Director George Abbey. Cheney, who has served as chairman of the board and chief executive of Halliburton Co. since January 1996, made his visit on Oct. 27 with Halliburton President and Chief Operating Officer David Lesar. The six-term Congressman was defense secretary from March 1989 to January 1993.

Postal Service to unveil stamp honoring Mars Pathfinder mission

The U.S. Postal Service will pay tribute to NASA's Mars Pathfinder mission in a Dec. 10 ceremony to unveil its new \$3 Priority Mail stamp, which features a panoramic view of the Martian landscape with the rover still stowed on a petal of the lander.

The ceremony at NASA's Jet Propulsion Laboratory will be opened with music by the U.S. Marine Corps' Third Marine Corps Aircraft Wing Band and a brief introduction by JPL Deputy Director Larry Dumas. Dr. Robert Parker, manager of the NASA Management Office at JPL and Pasadena Postmaster Robert Mysel will preside over the activities, which will culminate in the unveiling of the stamp by Dumas and Dr. Tirso del Junco, chairman of the U.S. Postal Service Board of Governors.

The Pathfinder image selected for the \$3 priority mail stamp was one of the first to be transmitted after landing on July 4, 1997. In the foreground the Sojourner rover is still folded up and waiting to be released from the petal of the lander. Within a day of landing, Sojourner had exited the lander's ramp to

begin its travels around the landing site. Fifteen million stamp sheets have been printed for first day issuance on Dec. 10, with information about the image and the mission printed on the reverse side.

"That first image of Pathfinder and Sojourner sitting safely on the surface of Mars ignited worldwide interest in our efforts to explore Mars," said JPL Director Dr. Edward Stone. "It is an honor for this mission to be recognized by issuance of this special U.S. postage stamp."

"As one of the most significant achievements in the history of America's space program, it is fitting that the Pathfinder mission be honored on a U.S. postage stamp," added Postmaster General Marvin Runyon. "When this stamp lands in stamp collections or on priority mail packages nationwide, it will be a reminder of the unmatched ingenuity that leads the world in space exploration."

The Mars Pathfinder stamp is the third U.S. stamp to incorporate invisible images to prevent counterfeiting, the Postal Service reported.

Follow holiday feasting with fitness program

The Health-Related Fitness Program is entering its fifteenth year, and the program's staff is ready to accept new enrollees for any of its three fitness courses, nutrition intervention or weight control programs.

Starting in October 1983 with 72 enrollees, the program has grown to 1,774 active participants, including civil servants, retirees, contractors and dependents.

The three Health-Related Fitness courses combine education with exercise based on medical screening and fitness tests. Medical exams include a maximal stress test for men over age 39 and women over age 49.

Free examinations are available for civil servants at the JSC Clinic. Contract employees and dependents must get the screening off-site at their expense.



total health

Classes meet for one hour at either 6:30 a.m., 11:30 a.m., or 4:15 p.m.; a full schedule of class dates is available from the program staff.

The Nutrition Intervention Program includes a free JSC Clinic blood chemistry assessment, followed by seven weeks of education on the role of nutrition in health. Additional samples are taken 12 weeks and a year after the start to determine program effects. Classes meet once a week on Wednesdays at 4 p.m.

Overweight employees may participate in the Complete Weight Control Program, which includes a fitness program and group reinforcement and support meetings at 11:30 a.m. Thursdays. Thursday meetings are led on a rotating basis by a social worker, exercise scientist and registered dietitian.

To apply, contact the Health-Related Fitness Office, Rm. 146 in the Gilruth Center, or call x30301.

Galloway to discuss NASA genesis

Dr. Eilene Galloway, one of the formers of the Space Act of 1958, will discuss her part in the genesis of NASA at 3 p.m. Monday, Dec. 8, in the Bldg. 30A Auditorium.

Galloway also will discuss international relations during the Sputnik era in an event co-sponsored by the JSC National Management Association and the Human Resources Office. All JSC civil service and contractor employees are invited.

When Sputnik was launched, Galloway was working as a senior specialist in international relations at the Library of Congress. She was called upon by then Senate Majority Leader Lyndon B. Johnson and Sen. Richard Russell to assist in formulating America's response to this event. She authored several papers on the uses of space and international cooperation.

Galloway is still active as honorary director of the International Institute of Space Law of the International Astronautical Federation and a fellow of the American Astronautical Society. In 1984, she was awarded the NASA Public Service Medal.

Humorous poem explains seriousness of gift regulations

(Continued from Page 1)

But lucky for me,
Some exceptions exist.
They're in subpart B and they
should not be missed.

I can pay market value if the gift I
do like,
Or I can at my option say "go
take a hike."
I can always say no,
But I need not decline.
If worth twenty or less then the
gift can be mine.

This exception has prompted
some very loud hollers.
It says gifts are okay if worth
twenty dollars.
But surely the public
Is certain to see,
I could never be bought for a
sandwich and tea.

Restrictions apply so it does not
suffice
To pay twenty bucks for a gift
twice the price.
And in any one year
I can't use it, of course,
To go over the limit—fifty dollars
per source.

For gifts that a friend or my sister
might send,
The rules recognize I don't want
to offend.
Regardless of value,
It only must be
That their motive to give wasn't
business, but me.

The rule's much the same in the
case of my spouse
Who happens to work as she
can't stand our house.
Although her employer

Is one of those sources,
I can go to their fete and avoid
more divorces.

In the case of most parties, the
rule's not so close
As the agency must have an
interest, I fear.
If worth more than twenty
And it's no friend true,
Then I'd better seek guidance or
I could be blue.
What of those in the office with
whom I share much
Are all treats a taboo—must we
always go dutch?
The rules here are different,
They're in subpart C
They okay some gifts even to
and from me.

I can give to my boss to a limit of
ten,

A baseball, a cap, or a blue ball-
point pen.
If not to my boss
Or my chain of command,
To a friend I can give more with-
out being canned.

I always look forward to my office
party.
We're all in good moods and the
food is so hearty.
If no arm is twisted,
Collecting's okay
To make sure that everyone has
a good day.

So go forth with good cheer and
know there's no reason
To think that the gifts rules will
ruin your season!

For more about accepting gifts,
call the Legal Office at x33021.



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